

GENERAL INFORMATION

8MM HEAD DRIVE PINS

Standard Domed Head Fasteners

PRODUCT DESCRIPTION

Drive pins with an 8mm diameter head are designed for permanently fastening a fixture to concrete, concrete over steel deck, and A36 or A572 / A992 structural steel. The fasteners are manufactured with a 0.145" diameter shank in various lengths. Knurled shank designs are available for installations in thick steel base materials. A plastic washer is mounted on the pin shank to retain the drive pin in the barrel of the tool and provide centered guidance during the driving operation.

GENERAL APPLICATIONS AND USES

- Attaching light gauge steel to concrete, concrete over steel deck or steel
- Attaching wood members to concrete or steel
- Attaching accessories, fixtures and components to concrete, concrete over steel deck or steel

APPROVALS AND LISTINGS

- International Code Council, Evaluation Service (ICC-ES), ESR-2024
- Code compliant with the International Building Code/International Residential Code: 2024 IBC/IRC, 2021 IBC/IRC, 2018 IBC/IRC, and 2015 IBC/IRC
- Tested in accordance with ASTM E1190 and ICC-ES AC70 for attachments in concrete and steel

GUIDE SPECIFICATION

- CSI Divisions: 03 15 00 - Concrete Accessories, 05 05 23 - Metal Fastenings, 06 05 23 - Wood, Plastic and Composite Fastenings, 09 22 16.23 - Fasteners.
- Power-driven fasteners shall be 8mm head drive pins as supplied by DEWALT, Towson, MD. Fasteners shall be installed in accordance with published instructions and the Authority Having Jurisdiction.

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8MM HEAD DRIVE PIN
WITH TOP HAT

SUITABLE BASE MATERIALS

- Normal-weight concrete
- Lightweight concrete
- Concrete over steel deck
- Steel

FASTENER SIZE RANGE

- 16mm (5/8") length through 27mm (1") length

SELECTION GUIDE

Pin / Fastener Description	Dimensions		Base Material				DEWALT Tools						Approvals & Listings
	Shank Diameter	Shank Length	Concrete	Lightweight Concrete	Concrete over Steel Deck	Steel	P1000 / T1000	P2201	P35s	P3500 / PA3500	Sniper	DFD270	
8mm Head Pin with Top Hat	0.145"	16mm to 27mm (5/8" to 1")	●	●	●	●	●	●	●	●	●	●	ICC-ES ESR-2024

● Suitable ○ May be Suitable

CODE LISTED
ICC-ES ESR-2024
CONCRETE, STEEL

PERFORMANCE DATA

Allowable Load Capacities for Powder Actuated Fasteners in Normal-Weight Concrete^{1,2,3,4,5,6}

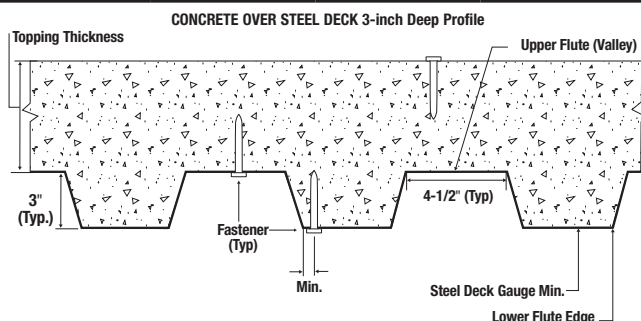
Fastener Description	Minimum Embed. Depth in. (mm)	Minimum Concrete Compressive Strength (F _c)							
		2,000 psi		3,000 psi		4,000 psi		5,000 psi	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
8mm Head Drive Pin (0.145" Shank)	5/8 (15.9)	25 (0.1)	45 (0.2)	60 (0.3)	95 (0.4)	45 (0.2)	95 (0.4)	25 (0.1)	95 (0.4)
	3/4 (19.1)	60 (0.3)	95 (0.4)	95 (0.4)	125 (0.6)	95 (0.4)	125 (0.6)	100 (0.4)	125 (0.6)
	1 (25.4)	100 (0.4)	140 (0.6)	130 (0.6)	155 (0.7)	155 (0.7)	155 (0.7)	180 (0.8)	200 (0.9)

- Fasteners must not be driven until the concrete has reached the minimum designated compressive strength. Linear interpolation may be used to determine allowable loads for intermediate compressive strengths.
- Concrete thickness must be a minimum of three times the embedment depth.
- The allowable tension and shear values are for fasteners only. Steel or wood members connected to the substrate must be investigated for compliance with the applicable code.
- Allowable load capacities are calculated using minimum required factors of safety in accordance with ICC-ES AC708; the minimum applied factor of safety is 5.0. Consideration of additional safety factors may be necessary depending on the application such as life safety.
- Fasteners must have a minimum spacing distance of 3 inches and a minimum edge distance 3 inches in accordance with ASTM E 1190. Consideration of smaller spacing and edge distances may be given based on application or jobsite testing.
- Multiple fasteners are recommended for any attachment for increased reliability.

Allowable Load Capacities for Powder Actuated Fasteners in Lightweight Concrete and Sand-Lightweight Concrete over Steel Deck^{1,2,3,8,9}

Fastener Description	Minimum Embed. Depth in. (mm)	Minimum Concrete Compressive Strength, f'c = 3,000 psi					
		Directly into Concrete ^{4,5}		Through Soffit of Steel Deck into Concrete (3-inch Deep Profile) ^{6,7,8}			
		Tension	Shear	Upper Flute		Lower Flute	
				Tension	Shear	Tension	Shear
		Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)	Allowable lbs. (kN)
8mm Head Drive Pin (0.145" Shank)	3/4 (19)	70 (0.3)	70 (0.3)	-	-	-	-
	1 (25)	70 (0.3)	125 (0.6)	175 (0.8)	290 (1.3)	120 (0.5)	290 (1.3)

- Fasteners must not be driven until the concrete has reached the minimum designated compressive strength. For a concrete compressive strength of 4,000 psi, the tabulated allowable loads may be increased by 12 percent.
- The tabulated tension and shear values are for the fasteners only. Steel or wood members connected with the substrate must be investigated for compliance with the applicable code.
- Allowable load capacities are calculated using minimum required factors of safety in accordance with ICC-ES AC708; the minimum applied factor of safety is 5.0. Consideration of additional safety factors may be necessary depending on the application such as life safety.
- For fasteners installed directly into concrete, the member thickness must be a minimum of three times the embedment but not necessary to be greater than 3.25 inches. Tabulated values are also applicable to the tops of concrete-filled steel deck profiles.
- Fasteners must have a minimum spacing distance of 3 inches and a minimum edge distance 3 inches in accordance with ASTM E 1190. Consideration of smaller spacing and edge distances may be given based on application or jobsite testing.
- For fasteners installed into the upper flute of the steel deck profile, the concrete thickness above the deck (topping thickness) must be a minimum of 3.25 inches. For fasteners installed into the lower flute of the steel deck profile, the concrete thickness above the deck (topping thickness) must be a minimum of 2.25 inches.
- Fasteners installed into the steel deck profile must have a minimum spacing distance of 4 inches (upper and lower flute) and a minimum edge distance of 1-1/8 inches (lower flute); there is no minimum edge distance requirement for fasteners installed in the upper flute. Consideration of smaller spacing distances may be given based on application or jobsite testing.
- Embedment is measured from the surface of the steel deck; the steel deck panel must have a base-metal thickness of 0.030-inch (22 gauge) to 0.048-inch (18 gauge). Consideration for the thickness of the material fastened to the base material must be given to achieve the required embedment for the fasteners.
- Multiple fasteners are recommended for any attachment for increased reliability.



Allowable Load Capacities for Powder Actuated Fasteners in ASTM A36 Steel^{1,2,3,5,6}

Fastener Description	Shank Type	Nominal Steel Thickness									
		1/8"		3/16"		1/4"		3/8"		1/2" ⁽⁴⁾	
		Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
8mm Head Drive Pin (0.145" Shank)	Knurled	220 (1.0)	200 (0.9)	340 (1.5)	610 (2.7)	445 (2.0)	560 (2.5)	520 (2.3)	605 (2.7)	490 (2.2)	575 (2.6)
	Smooth	170 (0.8)	265 (1.2)	355 (1.6)	565 (2.5)	410 (1.8)	560 (2.5)	465 (2.1)	390 (1.7)	390 (1.7)	520 (2.3)

- The allowable tension and shear values are for fasteners only. Steel or wood members connected to the substrate must be investigated for compliance with the applicable code.
- Allowable load capacities are calculated using minimum required factors of safety in accordance with ICC-ES AC70; the minimum applied factor of safety is 5.0. Consideration of additional safety factors may be necessary depending on the application such as life safety.
- Fasteners must be driven to obtain an embedment equivalent to the nominal steel thickness with the point of the fastener penetrating through the steel base material.
- Fasteners must be driven to obtain a minimum embedment of 0.50 inch into steel. The point of the fastener does not need to penetrate through the steel base material.
- Fasteners must have a minimum spacing distance of 1-1/2 inches and a minimum edge distance of 1/2 inch in accordance with ASTM E 1190. Consideration of smaller spacing distances may be given based on application or jobsite testing.
- Multiple fasteners are recommended for any attachment for increased reliability.

Nominal and Available Pull-Over Strengths for Light Gauge Steel Framing with Power-Driven Fasteners^{1,2,3}

Fastener Description	Shank Diameter	Minimum Thickness of Steel or Framing Member									
		16 Gauge		18 Gauge		20 Gauge		22 Gauge		25 Gauge	
		Nominal (lbs)	Available (lbs)	Nominal (lbs)	Available (lbs)	Nominal (lbs)	Available (lbs)	Nominal (lbs)	Available (lbs)	Nominal (lbs)	Available (lbs)
8mm Top Hat Pin	0.145"	2,185	730	1,745	580	1,310	435	1,095	365	765	255

- Tabulated pull-over strengths were calculated in accordance with ICC-ES AC70 and AISI S100-16. Allowable load values are based on a safety factor of 3.0.
- Allowable pullover capacities of sheet steel or framing member should be compared to the fastener tensile capacity in concrete, masonry or steel to determine the controlling resistance load.
- Steel or framing member with tensile strength of 58 ksi assumed for calculating tabulated values.

ORDERING INFORMATION
8mm Diameter Head Drive Pins with Top Hat

Cat. No.	Shank Length	Shank Diameter	Ctn Qty	Mstr Qty
50210-PWR	16mm 5/8" (K)	0.145"	100	5,000
50214-PWR	22mm 7/8"	0.145"	100	5,000
50216-PWR	27mm 1"	0.145"	100	5,000

(K) = knurled

